Feeding behavior of Green peach aphid (*Myzus persicae)* on *Asparagus* spp. susceptible and resistant to *Asparagus virus 1*

Edit Lantos[1], Edgar Schliephake[2], Reiner Krämer[1], Thomas Nothnagel[1]
[1] Julius Kühn-Institut, Institute for Breeding Research on Horticultural Crops, Quedlinburg
[2] Julius Kühn-Institut, Institute for Resistance Research and Stress Tolerance, Quedlinburg
Email of corresponding author: edit.lantos@julius-kuehn.de

The Green peach aphid (*Myzus persicae* S.) is probably the most important vector of *Asparagus virus 1* for cultivated asparagus (*Asparagus officinalis* L.). Stylet-borne viruses such as *Asparagus virus 1* (AV-1) will be transmitted during brief intracellular punctures of aphid feeding.

The control of *M. persicae* has relied almost exclusively on the use of chemical insecticides, but insecticides normally do not kill aphid vectors quickly enough to prevent the transmission of non-persistent viruses. Therefore, a control of this aphid on asparagus and the virus diseases must base on host plant resistance. In the cultivated asparagus there is no AV-1 resistance. Resistance to AV-1 was found in various wild relatives of asparagus.

In this study we compared the acceptance of asparagus species as host plant by *M. persicae* and the cell penetrations for the transmission of non-persistent viruses by using the electrical penetration graph technique (EPG). In basic principle of the EPG plant and aphid are incorporated in an electrical circuit. When the aphid penetrates the leaf with its stylet, they complete the circuit and as EPG output specific patterns are recorded. There are relationships of waveforms to aphid activities and the location of the stylet tips in the plant tissue.

The results suggested that *Asparagus officinalis* has been best accepted as a host plant by *Myzus persicae*. Wild relatives of asparagus revealed a different feeding behavior on *M. persicae*. Lower numbers of intracellular punctures reduce the probability of virus transmission but do not exclude it. Our results show that an aphid resistance (vector resistance) of wild relatives can largely be excluded. A specific relation between intracellular punctures and the AV-1 resistance in wild relatives will be further examined.